

## WHAT IS CLAIMED IS:

1           1.       A smoking cessation method, said method comprising:  
2           measuring a blood nicotine concentration while a patient is smoking;  
3           determining at least two values corresponding to patient characteristics  
4   selected from the group consisting of a body mass factor, a cumulative smoking factor, a  
5   psychological dependence factor, age, and menopausal status; and  
6           administering nicotine to the patient at an initial dosage determined based on  
7   said blood nicotine concentration and said at least two values.

1           2.       A method as in claim 1, wherein the nicotine is administered  
2   transdermally with the initial dosage controlled by the area of transdermal delivery.

1           3.       A method as in claim 1, wherein the nicotine is administered  
2   transdermally with the initial dosage controlled by the concentration of nicotine in a  
3   transdermal patch.

1           4.       A method as in claim 1, wherein the initial dosage is determined to  
2   maintain a target serum nicotine level in the patient which is at least 40% of the smoking  
3   nicotine concentration.

1           5.       A method as in claim 1, wherein the patient is a male and the patient  
2   characteristics include at least a body mass factor and a cumulative smoking factor.

1           6.       A method as in claim 5, wherein the body mass factor is a body mass  
2   index which is weight divided by height squared and wherein the cumulative smoking  
3   factor is the number of packs smoked per day immediately prior to cessation times the  
4   number of years smoked.

1           7.       A method as in claim 5, wherein the patient characteristics further  
2   include a psychological dependence factor, which is measured using the Fagerström  
3   Tolerance Questionnaire.

1           8.       A method as in claim 7, wherein the patient characteristics further  
2   include age measured as years.

1           9.       A method as in claim 1, wherein the patient is a female and the  
2   patient characteristics include at least a psychological dependence factor and age.

1           10.     A method as in claim 9, wherein the psychological dependence  
2 factor is measured using the Fagerström Tolerance Questionnaire and age is measured as  
3 years.

1           11.     A method as in claim 9, wherein the patient characteristics further  
2 include menopausal status, wherein no factor is introduced for pre-menopausal women and  
3 wherein a body mass factor is introduced for post-menopausal women.

1           12.     A method as in claim 11, wherein the patient characteristics further  
2 include a body mass factor which is weight divided by height squared.

1           13.     A method as in claim 1, wherein the blood nicotine level is measured  
2 as a stable nicotine metabolite.

1           14.     A method for determining a relationship between nicotine dosage  
2 and nicotine serum concentration in a population of patients who smoke tobacco, said  
3 method comprising:

4                 measuring blood nicotine concentrations in individual patients in said  
5 population while said individuals are smoking;

6                 administering a known dosage of nicotine to the patient after the patient has  
7 stopped smoking;

8                 measuring blood nicotine concentrations in each individual patient while  
9 administering nicotine and while the patient refrains from smoking;

10                determining at least two values corresponding to characteristics from each  
11 individual patient selected from the group consisting of a body mass factor, a cumulative  
12 smoking factor, a psychological dependence factor, age, and menopausal status; and

13                determining a relationship between nicotine dosage and nicotine serum  
14 concentration as a function of blood nicotine concentration while smoking and said at least  
15 two patient characteristics.

1           15.     A method as in claim 14, wherein the dosage is administered  
2 transdermally with at least one patch, wherein the determined relationship is blood nicotine  
3 level per patch.

1           16.     A method as in claim 14, wherein the patient is a male and the  
2 patient characteristics include at least a body mass factor and a cumulative smoking factor.

1                   17.     A method as in claim 16, wherein the body mass factor is a body  
2 mass index which is weight divided by height squared and wherein the cumulative smoking  
3 factor is the number of packs smoked per day immediately prior to cessation times the  
4 number of years smoked.

1                   18.     A method as in claim 16, wherein the patient characteristics further  
2 include a psychological dependence factor, which is measured using the Fagerström  
3 Tolerance Questionnaire.

1                   19.     A method as in claim 18, wherein the patient characteristics further  
2 include age measured as years.

1                   20.     A method as in claim 14, wherein the patient is a female and the  
2 patient characteristics include at least a psychological dependence factor and age.

1                   21.     A method as in claim 20, wherein the psychological dependence  
2 factor is measured using the Fagerström Tolerance Questionnaire and age is measured as  
3 years.

1                   22.     A method as in claim 20, wherein the patient characteristics further  
2 include menopausal status, wherein no factor is introduced for pre-menopausal women and  
3 wherein a body mass factor is introduced for post-menopausal women.

1                   23.     A method as in claim 22, wherein the patient characteristics further  
2 include a body mass factor which is weight divided by height squared.

1                   24.     A method as in claim 14, wherein the blood nicotine level is  
2 measured as a stable nicotine metabolite.